

## ABSTRACT

A scheme is described for distributing data operations on an irregular data stream over multiple stages of a data aligner to generate a regular data stream having continuous filled byte positions. In one particular embodiment, data alignment may involve the prediction of a rotation amount for unaligned data bytes. The rotation amount is predicted one clock cycle before actual rotation of data bytes based on the current contents of a buffer. The one cycle look ahead enables a large portion of calculations to be performed in a previous clock cycle and, thereby, may facilitate a high frequency design for a data aligner.